

TO: Mr. F. E. Resnik

DATE: May 7, 1965

FROM: J. E. Wickham

SUBJECT: Nicotine Transfer of Philip Morris' vs. Reynolds' Brands

Reynolds Tobacco Company cigarette brands yield a greater per cent transfer of filler alkaloids to the smoke than do Philip Morris brands (Table I). The reason for this is that the Reynolds' brands have a slower static burning time thus yield more puffs per cigarette (Table II) except for Camel.

If the Philip Morris brands are corrected for this puff difference, (Table III) all P. M. brands will yield an equivalent or greater per cent transfer of filler alkaloids to smoke than the comparable Reynolds' brands as reported in C.I. 4-65 except for Philip Morris 70. Camel, with a slower static burning time, yields an equivalent number of puffs per cigarette as Philip Morris 70, therefore no correction has been applied to Philip Morris 70.

A brief study was conducted to determine if the length of the cigarettes (70 mm) was the reason that there was no difference in puff count when a difference in static burning time existed. Fifteen (15) millimeter sections of filler of the respective cigarettes were added to make 85 mm cigarettes of both P. M. 70 and Camel 70. These cigarettes were then smoked by the regular procedure and still no difference in puff count was noted between "Philip Morris (85 mm)" and "Camel (85 mm)."

It can be concluded that the transfer of filler alkaloids to the smoke of Philip Morris brands could be improved by increasing the static burning time thus yielding more puffs per cigarette.

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TABLE I

Per Cent Transfer of Filler Alkaloids To Smoke

<u>Brand</u>	C.I. 4-65
	<u>Per Cent Transfer **</u>
Marlboro (85)	8.0
Winston (85)	8.3
Marlboro (80)	7.7
Winston (80)	8.0
Alpine (85)	7.9
Salem (85)	8.1
Philip Morris (70)	7.4
Camel (70)	7.8
P. M. Filter (85)	7.9
Tempo (85)	8.7

** Per cent Transfer = $\frac{\text{Nicotine delivery}}{\% \text{ Total alkaloids} \times \text{weight of tobacco}} \times 100$

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TABLE II

Number of Puffs Per Cigarette and Static Burning Time

<u>Brand</u>	C.I. 4-65	
	<u>Puff/Cigt</u>	<u>Static Burning Time, Minutes</u>
Marlboro (85)	8.4	8.8
Winston (85)	9.4	9.3
Marlboro (80)	7.9	8.7
Winston (80)	8.5	9.6
Alpine (85)	8.2	8.6
Salem (85)	8.8 *	9.4
Philip Morris (70)	7.3	9.3
Camel (70)	7.3	10.0
P. M. Filter (85)	8.3	8.6
Tempo (85)	9.0	9.4

*Change in paper additive (phosphate to citrate) in March 1965.

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TABLE III

Per Cent Transfer of Filler Alkaloids to Smoke
(Corrected for Puff Difference)*

<u>Brand</u>	<u>Per Cent</u>
Marlboro (85)	9.0
Winston (85)	8.3
Marlboro (80)	8.3
Winston (80)	8.0
Alpine (85)	8.4
Salem (85)	8.1
Philip Morris (70)	7.5
Camel (70)	7.8
P. M. Filter (85)	8.6
Tempo (85)	8.7

*Difference between puffs of Philip Morris brands and corresponding Reynolds' brands.

Factor + Nicotine delivery = Corrected Nicotine Delivery

Per cent transfer = $\frac{\text{nicotine delivery}}{\% \text{ total alkaloids} \times \text{weight of tobacco}} \times 100$

To correct for puff difference, nicotine delivery of Philip Morris brands was corrected by a factor obtained as follows:

Factor = $\frac{\text{nicotine delivery}}{\text{Puff/cigt}} \times \text{puff difference}$

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